

Virginia City Hybrid Energy Center
Response to Data Request
Bruce Buckheit, Member, Virginia Air Pollution Control Board

Question (Page No. 8):

Will the ash generated by VCHEC operations be managed in a quantifiably improved manner than the current materials? If this issue cannot be quantified, simply indicate that fact.

Response:

The state-of-the-art ash handling system at the VCHEC poses no adverse environmental impacts. Dominion is proposing a Solid Waste Management Facility (SWMF) site located in Curley Hollow adjacent to the proposed Virginia City Hybrid Energy Center (VCHEC). The SWMF site is approximately 378 acres, which is part of a larger collection of land, about 1,700 acres in size, currently owned by Dominion.

The proposed Curley Hollow Solid Waste Management Facility (SWMF) will be located adjacent to the proposed Virginia City Hybrid Energy Center. The SWMF site is approximately 378 acres in size. The SWMF will be a captive industrial solid waste disposal site, which means that it will be designed for the exclusive disposal of coal combustion by-products (CCB) associated with power generation from the proposed VCHEC. The CCB materials to be disposed of in the SWMF will be in the form of ash from burning coal and wood waste. The disposal area will be within the 188-acre Waste Management Unit Boundary, which is within the total 378-acre SWMF site. The facility will meet regulatory requirements set forth by Virginia Administrative Code, Chapter 80, Solid Waste Management Regulations.

Dominion conducted studies on the impacts of the entire SWMF. Dominion evaluated the impacts of the SWMF on surface and ground water quality and concluded that such impacts will be insignificant, because the SWMF will be a lined facility with a leachate collection system. Specifically, the facility will utilize a single synthetic liner system consisting of a prepared subgrade, 50-mil polyvinyl chloride (PVC) liner geomembrane, and leachate collection layer (including piping). The final surface of the facility will incorporate a 40 mil PVC geomembrane cap system and 24 inches of vegetated soil cover. The liner system and cap will contain the coal combustion byproduct (CCB) waste and collect any leachate that may accumulate, thereby protecting surface and ground water from run-off and seepage during operation of the SWMF.

A series of ground water monitoring wells will be installed around the perimeter of the SWMF site. These wells will be used to monitor flow rate, flow direction, and water quality of the ground water that passes beneath the site. The site is designed to meet

regulations using a single layer system and ground water monitoring system, which will prevent discharge from entering the local ground water and reaching the Clinch River. If any problems are detected, then they will be addressed immediately. Ground water monitoring will be conducted for the SWMF in accordance with § 9 VAC 20-80-300 of the Virginia Solid Waste Management Regulations.

The SWMF site will be developed in stages using small disposal cells, to limit the amount of disturbed area at one time. An initial cell and the necessary supporting infrastructure will be constructed first. When the initial cell is open for waste disposal, construction of the next cell will begin. Once the initial cell reaches its disposal capacity, the second cell will be open for waste placement. Portions of the first cell that reach final grade will be capped (closed), and construction of the next cell will begin. This process will continue over the life of the SWMF until the site reaches its final development grade.

The SWMF will utilize a 24-inch cap system placed over the final waste grades to close the site. The cap system will be comprised of a synthetic membrane, an 18-inch infiltration layer (low permeable soil), and a 6-inch erosion layer (earthen material) capable of sustaining vegetation. The synthetic membrane will create a barrier between the CCB waste and precipitation to reduce leachate generation after closure of the site. The erosion layer will shed storm water runoff and reduce erosion, effectively reducing long-term impacts to surface water quality.

Additional infrastructure for the SWMF will include lined drainage channels, lined sedimentation/storm water management ponds, a lined leachate management pond, a ground water monitoring system, and a paved haul road from the VCHEC to the disposal area, among other things. These measures will ensure that any short-term and long-term impacts on downstream water quality from the SWMF will be insignificant.

In order to further minimize any direct impacts to surface water quality, the VCHEC will pretreat any leachate collected from the SWMF prior to sending it to the Town of St. Paul's Wastewater Treatment Plant (WWTP) for discharge under the St. Paul WWTP's Virginia Pollutant Discharge Elimination System (VPDES) permit. Water released from the WWTP will comply with all water quality standards and VPDES permit requirements prior to discharge to the Clinch River.

The waste coal generated through washing or processing of coal is regulated under 4 VAC 25-130-816.81. Waste coal management and CCB management are both designed to protect human health and the environment; however, there is a difference. Due to the nature of waste coal piles and slurry ponds, the material is exposed to the environment, i.e. precipitation, thus allowing water contact with the subsurface materials. The VCHEC operation (lime/limestone injection and the introduction of water to the ash), will solidify and encapsulate the ash, reducing leaching potential.